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## VTT WP1 activities

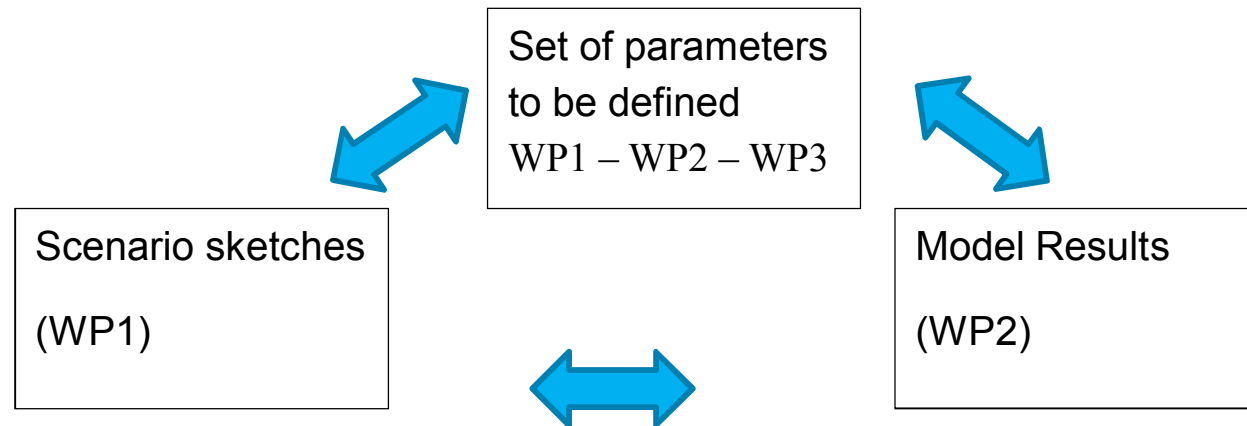
**NEO-CARBON ENERGY**

**3rd Researchers' Seminar**

**1-2 June 2015**

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# WP1-WP2-WP3 interaction: background and goal



- Transformative scenario sketches and input for other WPs produced in WP1 (e.g. Futures clinique).
- A variety of models VTT and LUT used in the project with their different needs and applicability (WP2)
- Process and concept related data needed from WP3
- **What is the “best” way to organise the interaction?**

## Strengths and weaknesses of storylines as “WP1-type” results

- Developed through engagement of experts and stakeholders, combining multiple perspectives and sources of expertise
  - May lead to novel and creative way of thinking about the future that go beyond modeling insights
- Key for communication the results of scenario exercises.
  - Accessible and memorable to broad audience.
- Storylines can encapsulate a number of softer and subtler aspects (institutional changes, behavior) etc difficult to model
- Potentially detached from reality - difficulties in confirming feasibility of storylines
- Combining multiple views of stakeholders: potentially biased, not reproducible, not transparent
- Source: Trutnevyte et al. (2014)

## Strengths and weaknesses of quantitative model-based scenarios - ("WP2-type" results)

- Satisfying the need for numerical values
  - Based on empirical data, physical laws, principles of economics and state-of-the-art knowledge about the technology and environmental processes
- Difficulties in capturing the softer aspects: behaviour and governance, organisational or institutional changes

- Source: Trutnevyte et al. (2014)

# WP1-WP2 interaction: challenges

## 1. WP1-WP2 interaction:

- The first modeling results loosely connected to WP1 results due to timing issues
- Several approaches to link socio-economic storylines and quantitative models
  - Both internationally published and attempted in earlier projects
  - No standard or universally "best" approach exists

## 2. "Internal" WP2 interaction

- Modeling work concentrating on different types of energy systems: different timescales, geographics, outputs, inputs, exogenous and endogenous variables, etc.
- Guaranteeing of comparability and internal consistency of the results

## Storylines (WP1) can complement the quantitative models (WP2) reflecting ...

- Exogenous context in which the modelled system is embedded to
- Exogenous modelling assumptions, such as drivers for changes
- Aspirational targets for the future energy system

- Source: Trutnevyte et al. (2014)

# Actions so far and forthcoming steps

## ▪ **Actions so far**

- VTT and LUT personnel additions to WP1 (workshop 4/2015), energy-related comments to FFRC work
- A template developed in order to find out the needs and characteristics of the VTT/LUT models inputs and outputs
  - Discussions and iterations conducted (5/2015)

## ▪ **Forthcoming steps**

1. Defining appropriate datasets and their usability between the models (“type”).
2. Review of attempts to link socio-economic storylines and multiple quantitative models. Tailoring the process for the Neo-Carbon project
3. Defining the appropriate scenario set-up and corresponding parameters for each of the models (possibly utilizing the WP1 input)
4. Defining the alternative “Neo-Carbon concepts” (WP3)
5. Calculations and iterations

# Template developed in order to find out the needs and characteristics of the VTT/LUT models inputs and outputs



		Parameters needed for modelling the characteristics and their sources in different models			
			Exogenous		
			From other models		
			Endogenous		
Characteristic	TIMES	WILMAR	Balmorel	EnergyPLAN	LUT Energy System
<b>Time dimension and resolution for data</b>	2020/ 2030/2040/2050 Timeslices	2020/ 2030/2040/2050 Hourly	2020/ 2030/2040/2050 Hourly	2020/ 2030/2040/2050 Hourly	2020/ 2030/2040/2050 Hourly
<b>Multi-nodal capability</b>	zonal model (countries, groups of countries)	zonal model (more zones per country)	zonal model (more zones per country)	no	zonal model (resolution can be varied)
<b>Areal coverage</b>	Global/Nordic	Northern Europe + DE, PL, Baltic; expansion to NW RU, UK	Northern Europe + DE, PL, Baltic; expansion to NW RU, UK	FI, DK, IE, MZ, CN, CA	global, regional, national
<b>Global development, EU development</b>	Trade barriers, global climate agreement				
<b>Price of oil and other energy commodities</b>		(coordinated/from TIMES) or exogenous	(coordinated/from TIMES) or exogenous	exogenous	exogenous
<b>CO<sub>2</sub> price</b>		from Balmorel	(coordinated/from TIMES) or endogenous when CO <sub>2</sub> limits are set	exogenous	exogenous
<b>Technology development</b>	Low/Moderate/Boosted - Potential and costs of new technologies	from Balmorel	(coordinated/from TIMES) or exogenous resource potential and costs of new technologies	exogenous	exogenous





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